# State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 10, 1997

M. Eugene Hartley
Intermountain Aggregate Company
6705 Rime Village Drive East
Birmingham, Alabama 35216

Re: Initial Review of Notice of Intention to Commence Large Mining Operations, Intermountain Aggregate Corporation Company, Ekins East Mine, M/049/032, Utah County, Utah

Dear Mr. Hartley:

The Division has completed a review of your draft Notice of Intention to Commence Large Mining Operations for the Ekins East mine, located in Utah County, Utah, which was received June 26, 1997. After reviewing the information, the Division has the following comments which will need to be addressed before tentative approval may be granted. The comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion. A final, updated and complete version of the large mining permit application will be required after resolution of all Division comments.

The Division will suspend further review of the Ekins East mine NOI until your response to this letter is received. If you have any questions in this regard please contact me, Tony Gallegos, Lynn Kunzler, or Tom Munson of the Minerals Staff. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg

D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
Attachment: Review
o:\review\m049032.lmo

# INITIAL REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

**Intermountain Aggregate Corporation**
Ekins East Mine

M/049/032

## R647-4-105 - Maps, Drawings & Photographs

**105.1 Topographic base map, boundaries, pre-act disturbance**
The cover sheet refers to the three drawings as "Existing Topo and Digital Ortho," "Mine," and "Reclamation Plan." These titles will be used in this review to refer to the specific drawing. There are several sections of road leading through the spoils and mining areas which are not identified as existing or new disturbances. Please label or code these roads appropriately to indicate whether they are existing or new disturbances on the drawings. Also provide a written statement in the appropriate section of the submission to describe the status of these road disturbances. (AAG)

**105.2 Surface facilities map**
Please provide an additional surface facilities drawing which provides a larger view of the plant and yard area in the northeast corner of the lease area. Specifically include the pond, sales office, stockpiles, crusher, etc. A scale of 1 inch = 200 feet would be preferable, however you may adjust the scale as needed to provide coverage. Please label or provide a key to each structure shown on this surface facilities detail drawing. (AAG)

There are several features shown outside the dark lines bordering the main areas in the Mine and Reclamation Plan drawings. These features include silt fences, the pond, roads, the well, and the rip rapped channel. These features are considered as disturbed areas by the Division and will need to be included within the disturbed area borders on the drawings and also included in the disturbed acreage figure. Please revise these drawings to include these disturbances. (AAG)

**105.3 Drawings or Cross Sections (slopes, roads, pads, etc.)**
Please provide two cross sections for each of the main quarry excavations as projected at the end of mining operations. Please run these cross sections along the main axes of the excavations at perpendicular angles. Please show the pre-mining and post reclamation topography on these cross sections as well. Please show the locations of these cross sections on the Mine and Reclamation Plan drawings. (AAG)

Please provide cross sections of the spoils area as projected at the end of mining. Please show the pre-mining and post-reclamation topography on these cross sections drawings. Please show the locations of these cross sections on the Mine and Reclamation Plan drawings. (AAG)

Please provide a Reclamation Treatments Map. This map should cover all disturbances created under this operation. This map should include color coding or cross hatching which correlates with the specific reclamation treatments proposed for that particular disturbance feature. For example, roads may be color coded to reflect the reclamation treatments of ripping, topsoil replacement and drill seeding. The Reclamation Treatments map should be of a scale which

allows coverage of the disturbed areas. Since the majority of the disturbances for this project are within the Lease Area, the borders of the Reclamation Treatments map could be set slightly outside the lease boundary. (AAG)

**R647-4-106 - Operation Plan**

**106.2 Type of operations conducted, mining method, processing etc.**
The mineral deposit is described as 400 feet thick, but no specific description of the depth of quarry excavations was provided. The variance section of the submission describes mining as *an initial forty foot hilltop limestone ore extraction proceeding in layers from west to east. Once mining reaches the permit boundary mining will proceed down in forty foot benches from west to east.* Please describe the proposed mining progression and depth of mining operations. Please describe the basic crushing and screening process and the different stockpiles. Although not specifically mentioned, it is assumed the overburden will be drilled, blasted and removed prior to blasting the ore. Please confirm this assumption. Please describe how spoils/overburden will be moved and placed in the spoils areas. (AAG)

**106.3 Estimated acreage disturbed and reclaimed**
The Mine and Reclamation Plan drawings show three phases of mining areas. Please provide a projected schedule for the three mining phases these areas represent. The reclamation cost estimate refers to 45 acres of disturbance within the first five years of operation, but it is unknown which areas or phases are included in this five year estimate. (AAG)

Section III, item 2 of the LMO form describes the acreage to be disturbed as totaling 61.17 acres when all phases are included. The Reclamation Plan drawing includes a block titled "Areas to Reclaim" as 57.52 acres. Please explain the 3.62 acre difference between these figures. (AAG)

**106.4 Description of nature of materials to be mined**
Please provide an estimate of the amount of overburden to be removed annually or during the life of the mine for the different phases. Please describe the nature and particle size of the overburden material to be placed in the spoils areas. (AAG)

**106.6 Plan for protecting & redepositing soils**
Plans for protection of the topsoil stockpile need to include interim revegetation and posting signs. Revegetation need only include 2-3 species to stabilize the stockpiles. Please revise your plan to reflect these changes. (LK)

**106.8 Depth to groundwater, extent of overburden, geology**
Please estimate the average thickness of overburden material for the respective mining areas. (AAG)

**106.9 Location & size of ore, waste, tailings, ponds**

Please provide an estimate of the amount of overburden material to be placed in each of the respective spoils areas. Please provide an estimate of the overburden material to be utilized as road base, berm materials or in the plant area. (AAG)

Please provide the drainage calculations used to determine the size of the sediment pond as shown on sheet 5 of 5 of the typical details. There were no watershed calculations included with the report or maps delineating the watersheds used in the calculations. (TM)

**R647-4-107 - Operation Practices**

**107.1 Public Safety and Welfare**

What safety measures are proposed to prevent public access to the pit highwall areas during operations? (AAG)

**107.2 Drainages to minimize damage**

Please show the location of diverted drainages on the appropriate figure and include the drainage sizing criteria for any diverted drainages.(TM)

**R647-4-109 - Impact Assessment**

**109.1 Impacts to surface & groundwater systems**

The operation plan provides no description of the site specific geology related to the groundwater although a water well has been located (reference in the plan to water well reports states water levels at 400 feet). Please elaborate on how the mine will have no impact on groundwater, including the possible depth of the pit in relation to the water table and characteristics of the aquifer. (TM)

**109.4 Slope stability, erosion control, air quality, safety**

Please provide a description of the highwall configuration at each pit after reclamation has been completed. Include typical bench widths, bench heights, interbench angles, total pit depth, and overall pit highwall angle in these pit descriptions. Please provide site specific information to support the statement of structural stability of the proposed highwall configurations. Site specific information may include: geologic mapping or rock units, fault zones, bedding, etc., results of mechanical testing of the wall rock, historical information from nearby quarries with similar geology, or rock mechanics calculations. (AAG)

109.5 Please describe any proposed actions to mitigate any projected impacts.

**R647-4-110 - Reclamation Plan**

Details of the reclamation plan are spread throughout the submission rather than being consolidated under one heading. Reclamation details are mainly found in three locations. One location is under *section V. Reclamation Plan* of the submission form. A second location is *Exhibit D* of the submission

titled *Reclamation Plan*. The third location is the block on the *Reclamation Plan drawing titled Reclamation Notes*. Please consolidate all of the separate reclamation details under one reclamation section. (AAG)

**110.1 Current & post mining land use**
Current land use also includes wildlife habitat. Please revise this section to reflect this land use as well. (LK)

**110.2 Roads, highwalls, slopes, drainages, pits, etc., reclaimed**
Item 8 of the Reclamation Notes on the Reclamation Plan drawing states the access road is to remain at the request of the owner. There are several sections of access road throughout the phase 1 and phase 2 areas. Please clarify which sections of this access road, if any, are proposed to remain unreclaimed. Also see comments under section 110.3 of this rule heading.

Reclamation of the highwalls is inferred in the statement that the pit areas will be vegetated; however, another section states that only pit floors will be revegetated. Please describe the reclamation proposed for the pit floor, benches and highwall.

Items 9 and 12 under the Reclamation Notes on the Reclamation Plan drawing refer to slopes at 3:1 vertical:horizontal. This appears to be a typographical error and was intended to mean 3 Horizontal: 1 Vertical. Please confirm this.

Item 4 under the Reclamation Notes states the process pond will be filled with construction debris and spoils material. Item 5 refers to burial of boulders, debris and footings followed by the redressing of spoils material. Will these materials be buried in the spoils area or in the pond mentioned in item 4? Item 6 states the yard area will be contoured to drain to the pond which will remain a lake. Please explain the conflicting information under items 4 and 6.

Items 5, 10, and 12 under the Reclamation Notes mention the placement of 18 inches of growth media material on several areas, while section V. Reclamation Plan of the submission states that 12 inches of soil material will be placed on areas to be reseeded. Please explain these conflicting statements.

For burial of construction debris and materials the Division typically requests a minimum cover depth of four feet. Please be advised that you may need clearance from the State Division of Solid and Hazardous waste in order to bury construction debris on site.

The Reclamation Plan section of the submission form states, *Following the spreading of the topsoil, a harrow or disc will be employed to loosen soil to a depth of six inches.* Discing the soils prior to seeding is acceptable in areas which were not compacted during mining operations. Areas which have been compacted, such as stockpile pads, haul roads, foundation areas, etc., usually require deep ripping with a dozer prior to revegetation efforts. Please explain why deep ripping is not necessary for compacted areas at this mining operation or modify the reclamation plan to include deep ripping of stockpile pads and roads. (AAG)

**110.3 Description of facilities to be left (post mining use)**
The primary access road from Highway 6 to the plant area is proposed to remain at the desire of the private land owner. A letter from Shirl Ekins refers to the road as the paved access roadway. The Reclamation Plan drawing shows this roadway as being 40 feet wide and approximately 3,480 feet long. The disturbed acreage associated with this access road was not provided, but using the above mentioned dimensions gives approximately 3.2 acres. See the variance section for additional comments. (AAG)

**R647-4-111 - Reclamation Practices**

**111.1 Public Safety and Welfare**
Please show the location(s) of the fencing proposed around the pits on the Reclamation Plan drawing. Will access to the mine area be controlled by a locked gate after operations cease? The posting of warning signs in appropriate locations is recommended to minimize safety hazards to the public after operations cease. (AAG)

**111.2 Reclamation of natural channels**
There was no discussion regarding the reclamation of natural channels disturbed by mining. Therefore, a discussion of how this will be accomplished needs to be included in the plan. (TM)

**111.3 Erosion & sediment control**
The plan shows erosion control details but fails to provide any details how, when and where these controls will be used. Please provide these details. (TM)

**111.6 All slopes regraded to stable configuration**
A slope configuration of 3 horizontal to 1 vertical is generally acceptable to the Division for spoils piles or regraded areas (see comments under Section R647-4-110.2). (AAG)

**111.7 Highwalls stabilized at 45 degrees or less**
A request for a variance from the 45 degree highwall standard was included in the submission. It is assumed that this variance request was meant to apply to all highwalls created for all three phases of mining proposed in this submission. Please confirm this assumption. Refer to the variance section for additional comments. (AAG)

**R647-4-112 - Variance**
A variance to rule R647-4-111.7 - Highwalls was requested. The areas to be affected by this request are assumed to be all quarry highwalls. A signed statement from a PE asserts the structural stability of the vertical to near vertical highwalls. Justification for the variance is stated as extensive geologic investigation and mapping of the bedrock indicate the planes of the bedrock dip approximately 25 degrees from the west to the east and southeast, and by mining from the west to the east, a stable vertical wall will exist. The supplemental information requested by the Division under sections R647-4-105.3 and R647-4-109.4 will need to be reviewed before making a decision on this variance request. (AAG)

A variance to allow the primary access road to remain unreclaimed was requested. This would be a variance to rule R647-4-111.8 - Roads and Pads. A letter from the land owner was provided which expressed a desire for this paved road to remain for future development of properties to the south. The Division will grant a variance to rule R647-4-111.8 to allow the 40 foot wide, paved, primary access road from Highway 6 to the plant area to remain unreclaimed at the end of these mining operations. The disturbance associated with this road will be included in the affected area for this operation; however, no costs for reclamation of this road will need to be included in the surety estimate. (AAG)

**R647-4-113 - Surety**

A reclamation cost estimate was received separate from the main submission on October 24, 1997. The estimate states that within the first five years of operation approximately 45 acres will be disturbed and 72,600 cubic yards of topsoil will be removed. The total cost estimate is $81,465 for 45 acres which averages out as $1,810/acre.

The unit costs for the equipment described in terms of $/hr are low compared to unit costs arrived at using the Rental Rate Blue Book for equipment and equipment operating costs, and the Means Heavy Construction Cost Data 1997 for operator costs. Please provide a quote from a local contractor to support the unit costs used in the reclamation cost estimate submitted, or revise the estimate using the following unit costs: Cat 623 E Scraper $230/hr, Cat D8N Dozer $178/hr, Cat 140H Grader $101/hr.

The reclamation cost estimate also used a unit cost for seed of $25/lb with a total cost for 45 acres of $15,875. The Division estimates the cost of the proposed seedmix as approximately $139/acre for drill seeding and $208/acre for broadcast seeding. More detail is needed in the reclamation plan in order to make a more accurate comparison of these seed costs (i.e., how much of the disturbed area will be drill seeded and how much will be broadcast seeded).

The cost estimate will need to include a 10% contingency added on after the final subtotal. This subtotal in current dollars will then need to be escalated for five years into the future using a rate of 2.52% per year. The Division can perform these calculations after receiving the revised estimate if you desire.

The additional information requested in this review will be needed before the surety estimate can be calculated or verified. (AAG)